

1. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with  $x_1 \leq x_2$  (if they exist).

$$-14x^2 - 13x + 7 = 0$$

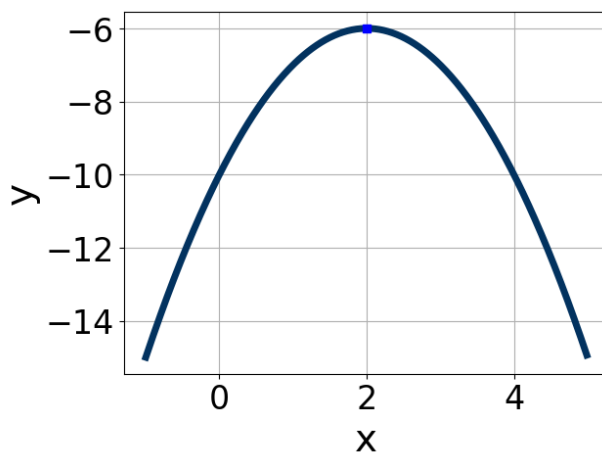
- A.  $x_1 \in [-25.11, -23.76]$  and  $x_2 \in [22.6, 25.7]$
  - B.  $x_1 \in [-0.49, -0.3]$  and  $x_2 \in [1.1, 3.2]$
  - C.  $x_1 \in [-2.86, -1.21]$  and  $x_2 \in [-0.2, 0.7]$
  - D.  $x_1 \in [-6.36, -4.31]$  and  $x_2 \in [17.4, 19.1]$
  - E. There are no Real solutions.
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2. Solve the quadratic equation below. Then, choose the intervals that the solutions  $x_1$  and  $x_2$  belong to, with  $x_1 \leq x_2$ .

$$25x^2 - 15x - 54 = 0$$

- A.  $x_1 \in [-6.12, -5.4]$  and  $x_2 \in [0.13, 0.59]$
  - B.  $x_1 \in [-0.76, -0.47]$  and  $x_2 \in [3.58, 3.93]$
  - C.  $x_1 \in [-4.04, -3.17]$  and  $x_2 \in [0.47, 0.87]$
  - D.  $x_1 \in [-1.58, -0.64]$  and  $x_2 \in [1.69, 1.98]$
  - E.  $x_1 \in [-30.39, -29.06]$  and  $x_2 \in [44.7, 45.48]$
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3. Write the equation of the graph presented below in the form  $f(x) = ax^2 + bx + c$ , assuming  $a = 1$  or  $a = -1$ . Then, choose the intervals that  $a$ ,  $b$ , and  $c$  belong to.



- A.  $a \in [-1, 0]$ ,  $b \in [3, 6]$ , and  $c \in [-12, -9]$
- B.  $a \in [1, 2]$ ,  $b \in [-6, -1]$ , and  $c \in [-2, 0]$
- C.  $a \in [-1, 0]$ ,  $b \in [-6, -1]$ , and  $c \in [-12, -9]$
- D.  $a \in [-1, 0]$ ,  $b \in [-6, -1]$ , and  $c \in [1, 6]$
- E.  $a \in [1, 2]$ ,  $b \in [3, 6]$ , and  $c \in [-2, 0]$

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4. Factor the quadratic below. Then, choose the intervals that contain the constants in the form  $(ax + b)(cx + d)$ ;  $b \leq d$ .

$$24x^2 + 10x - 25$$

- A.  $a \in [5.71, 7.84]$ ,  $b \in [-9, -3]$ ,  $c \in [3.01, 4.8]$ , and  $d \in [2, 9]$
- B.  $a \in [1.39, 2.74]$ ,  $b \in [-9, -3]$ ,  $c \in [11.17, 12.67]$ , and  $d \in [2, 9]$
- C.  $a \in [-0.34, 1.88]$ ,  $b \in [-20, -15]$ ,  $c \in [0.8, 1.94]$ , and  $d \in [27, 31]$
- D.  $a \in [10.73, 12.47]$ ,  $b \in [-9, -3]$ ,  $c \in [1.86, 2.49]$ , and  $d \in [2, 9]$
- E. None of the above.

5. Solve the quadratic equation below. Then, choose the intervals that the solutions  $x_1$  and  $x_2$  belong to, with  $x_1 \leq x_2$ .

$$10x^2 - 53x + 36 = 0$$

- A.  $x_1 \in [0.82, 0.99]$  and  $x_2 \in [3.18, 4.08]$
  - B.  $x_1 \in [0.55, 0.84]$  and  $x_2 \in [4.16, 4.94]$
  - C.  $x_1 \in [0.35, 0.47]$  and  $x_2 \in [8.74, 9.12]$
  - D.  $x_1 \in [8, 8.12]$  and  $x_2 \in [44.8, 45.7]$
  - E.  $x_1 \in [1.46, 1.63]$  and  $x_2 \in [1.24, 2.58]$
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6. Solve the quadratic equation below. Then, choose the intervals that the solutions belong to, with  $x_1 \leq x_2$  (if they exist).

$$20x^2 - 13x - 9 = 0$$

- A.  $x_1 \in [-29.78, -29.25]$  and  $x_2 \in [28.5, 30.7]$
  - B.  $x_1 \in [-1.64, -0.95]$  and  $x_2 \in [0.1, 0.9]$
  - C.  $x_1 \in [-0.54, -0.12]$  and  $x_2 \in [0.6, 1.5]$
  - D.  $x_1 \in [-8.61, -7.69]$  and  $x_2 \in [19.8, 22.5]$
  - E. There are no Real solutions.
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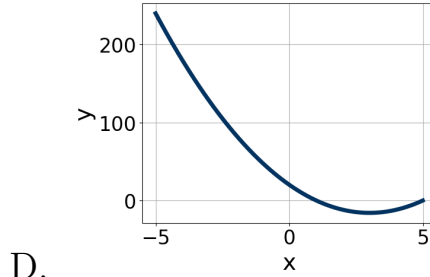
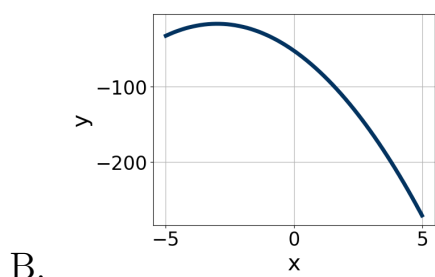
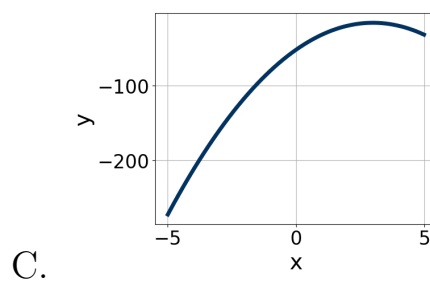
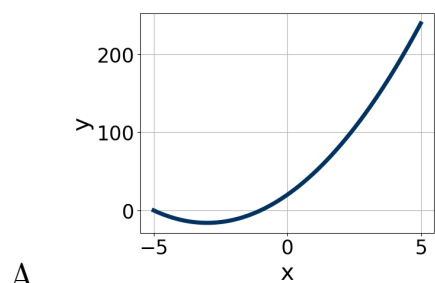
7. Factor the quadratic below. Then, choose the intervals that contain the constants in the form  $(ax + b)(cx + d)$ ;  $b \leq d$ .

$$54x^2 + 33x - 10$$

- A.  $a \in [-0.4, 1.2]$ ,  $b \in [-14, -11]$ ,  $c \in [0.3, 1.3]$ , and  $d \in [41, 54]$
- B.  $a \in [17.6, 19]$ ,  $b \in [-3, 3]$ ,  $c \in [1.6, 3.3]$ , and  $d \in [5, 15]$
- C.  $a \in [8.4, 10.1]$ ,  $b \in [-3, 3]$ ,  $c \in [5.5, 7]$ , and  $d \in [5, 15]$
- D.  $a \in [1.3, 5.3]$ ,  $b \in [-3, 3]$ ,  $c \in [16.4, 21.1]$ , and  $d \in [5, 15]$
- E. None of the above.

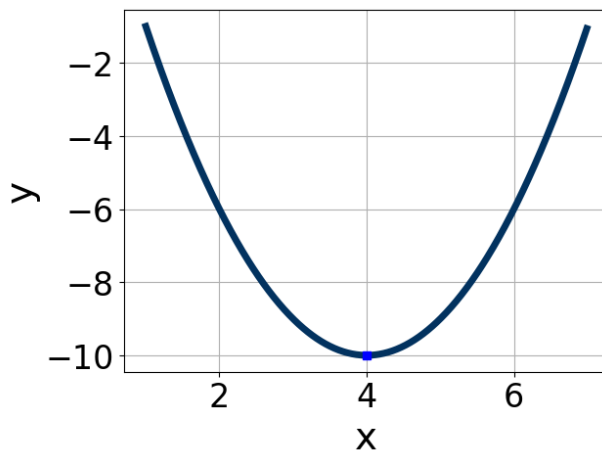
8. Graph the equation below.

$$f(x) = -(x - 3)^2 - 16$$



E. None of the above.

9. Write the equation of the graph presented below in the form  $f(x) = ax^2 + bx + c$ , assuming  $a = 1$  or  $a = -1$ . Then, choose the intervals that  $a, b$ , and  $c$  belong to.

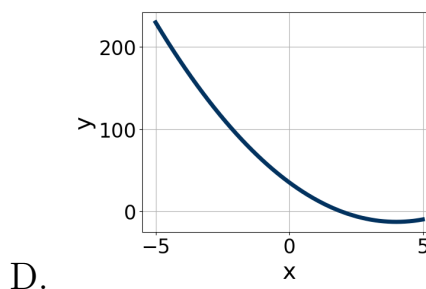
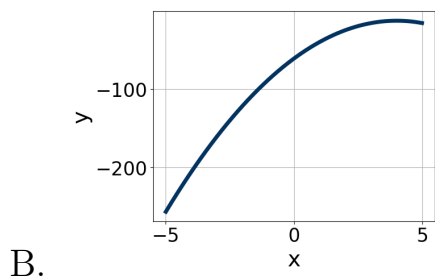
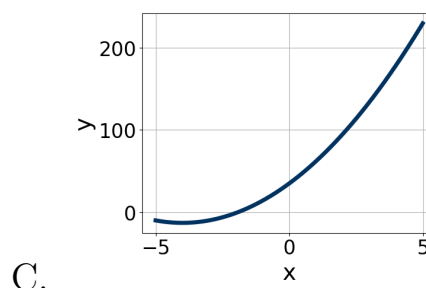
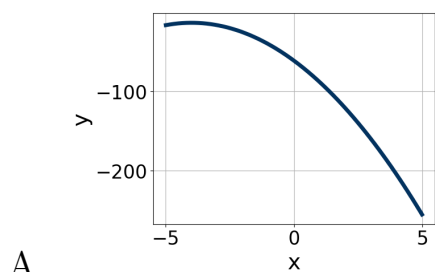


A.  $a \in [0.6, 1.5]$ ,  $b \in [-11, -6]$ , and  $c \in [5, 8]$

- B.  $a \in [-1.5, -0.1]$ ,  $b \in [-11, -6]$ , and  $c \in [-27, -25]$
- C.  $a \in [0.6, 1.5]$ ,  $b \in [8, 11]$ , and  $c \in [5, 8]$
- D.  $a \in [-1.5, -0.1]$ ,  $b \in [8, 11]$ , and  $c \in [-27, -25]$
- E.  $a \in [0.6, 1.5]$ ,  $b \in [8, 11]$ , and  $c \in [25, 28]$
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10. Graph the equation below.

$$f(x) = -(x - 4)^2 - 13$$



E. None of the above.

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